PROJECT NUMBER : 6912
PROJECT TITLE : Tobacco/Smoke Relationships
PROJECT LEADER : R. R. Izac
WRITTEN BY : S. Drew
PERIOD COVERED : December, 1990

I. CROSS SOLUBLES BASE WEB (CHEMISTRY)

A. **Objective:** To modify tobacco solubles and evaluate the smoke chemistry of fillers from various treated solubles and the appropriate base web.

B. **Results:** A study using ion exchange resins to remove salts and metal cations from tobacco solubles was continued. Burley CEL and BuS1 have been treated with a strong cation exchange resin to determine the appropriate starting material for use in future ion exchange studies.

Bright (Br), burley (Bu), and Oriental (MT) "solubles" and insolubles were freeze dried to determine the amount of solids present as part of a smoke chemistry study.

IT CSCs from the amino acid add-back, the 10K hollow fiber membrane and the Bu CEL stock comparison studies have been submitted for S/M assay testing.

Preparation and set-up of the Medimat® 220 electrodialysis (ED) unit was continued. Cation and anion cell membranes were assembled for use with the ED unit.

C. **Plans:** Continue to generate model fillers from various CSBW studies. The Br, Bu, and MT solubles and their corresponding insolubles will be applied to bright base web. Impaction trapped cigarette smoke condensate (IT CSC) generated from each model filler will be tested in the S/M assay.

D. **References:**

1. Drew, S. Notebook No. 8950, pp. 81-83.
2. Hellams, R. Notebook No. 8959.
3. Zoller, M. Notebook No. 9005, pp. 85-93.

II. SUPPORT FUNCTION: SAMPLE PREPARATION

A. **Objective:** To prepare chemical fractions and/or condensates as needed for biological and chemical analysis.

B. **Results:** A study to determine the biological and chemical differences in collection and/or processing methods was continued. IT CSC was collected on Cambridge filter pads at room temperature and in Elmenhorst cold traps (-78°C). Samples were prepared in DMSO and submitted for S/M testing. IT CSC was collected at ice water temperature for PAH and metal analyses.

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A ^{14}C-(U)-nicotine solution was added to aerated basin liquor and the solution exposed to bubbled oxygen in a reaction vessel. After 24 hours, the liquor was determined by HPLC to be depleted, or below the detection limit, of nicotine. Preliminary radioactivity results were obtained. Approximately 50% of the radioactivity was determined to be $^{14}CO_2$. The remainder of the activity was associated with a water soluble metabolite (45%) and the solids (5%) in the reaction mixture. The identity of the activity in the solids has not been determined.

C. Plans: Submit appropriate products to ARD for chemical analyses and to Project 6906 personnel for S/M testing.

D. References:

1. Hellams, R. Notebook No. 8959.

2. Izac, R. Notebook No. 8874, pp. 80-83.

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